



Two new records of Poaceae to the Flora of Melghat Biosphere Reserve, Amravati, India

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ABSTRACT

A comprehensive review of the floristic wealth of Melghat Biosphere Reserve and search for exploration and collection of new species and germplasm has led to the identification of *Echinochloa crus-galli* (L.) P. Beauv. and *Setaria pumila* (Poir.) Roem. & Schult. as new records for the Flora of Melghat. Morphological characteristics of the new species collected, associated species, description of the sites and conservation of the germplasm in the National Gene Bank at NBPGR, New Delhi are presented in the paper.

Key Words: New record, *Echinochloa crus-galli*, *Setaria pumila*, flora of Melghat, Amravati.

INTRODUCTION

Identification of new species, taxonomic and morphological description of the plant species is essential for utilization of plant genetic resources in crop improvement programme. Collection of wild relatives of crop plants from different agro-ecological niches helps in building up the gene pool of the species. Keeping this in view, a systematic survey of small millets and their wild relatives was undertaken from Melghat Biosphere Reserve of Amravati district of Maharashtra. The Flora of Melghat has been studied by various workers. Witt (1916) and Patel (1968) studied mainly trees, shrubs and economic herbs etc. whereas Dhore and Joshi (1988) documented the floristic wealth of Melghat including herbs, grasses and cultivated species. Later on Bhogaonkar and Devarkar (1999) added 67 species and Londhe *et al.* (2002) added 102 species to the flora of Melghat. It was observed that *Echinochloa crus-galli*, barnyard grass and *Setaria pumila*, yellow bristle grass were not collected by the earlier workers

from the Melghat Biosphere Reserve. Hence, an attempt has been made to record the occurrence of two species of Poaceae in the Floristic wealth of Melghat. Botanical description, associated species, description of the sites and conservation of the germplasm in the National Gene Bank at NBPGR, New Delhi are discussed in the paper.

MATERIAL AND METHODS

Survey of literature on crop wild relatives of members of Poaceae and Floristic wealth of Amravati district in general and Melghat in particular were done before mounting the exploration. Accordingly, under the National Exploration and Collection mission, an exploration and collection programme exclusively on millets, small millets and their wild relatives was undertaken during 29th October 2012-5th November 2012 from Melghat Biosphere Reserve and its adjoining region. During the exploration, the author came across *Echinochloa crus-galli* (L.) P. Beauv. and *Setaria pumila* (Poir.) Roem. & Schult.

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for the first time from different localities of Melghat. Each accession was assigned a collector number. Location of the species (village, block, district, longitude, latitude and altitude) and botanical characteristics of the plant species were recorded at the collection site itself.

RESULTS AND DISCUSSION

During the exploration and collection mission from Melghat Biosphere Reserve, one accession of *Echinochloa crus-galli* and two accessions of *Setaria pumila* were collected. Morphological characteristics and description of the plants species collected and location are mentioned (Fig. 1).

***Echinochloa crusgalli* (L.) P. Beauv.:** The accession (D 2012-49) was collected as a weed in the Sorghum plot from the village Bod (21° 31' 461'' N and 76° 59' 196'' E, altitude 1026 ft.), Dharni block, Melghat, Amravati, Maharashtra. Locally the plant is called as *Dodoma*. Herbarium of the plants were prepared, seeds were collected, processed and got assigned IC 597326 number after conserving the seed material in the National Gene Bank.

The plants are stout, pigmentation green, stem slender, leaves green, leaf blade pubescence glabrous, sheath pubescence glabrous, flat and broad to the extent of 2.5 cm. Inflorescence 10-20 cm, usually inclined or drooping, spike sessile or subsessile, erect and rarely decurved, spikelets 0.35 – 0.4 cm, long, ovoid, greenish or tinged purple, densely packed in 3 to 5 rows, turgid. Flowering and fruiting August-November. Plant height 90-110 cm, leaf length 25.0- 45.0 cm, leaf width 1.0-2.5 cm, peduncle length 13.1-23.9 cm, inflorescence length 25.6-42.3 cm, spike length 1.4-2.3 cm and inflorescence width 0.4-0.5 cm.

***Setaria pumila* (Poir.) Roem. & Schult.:** The accession (D 2012-10) was collected as a weed in a Sorghum field from the village Doma (21° 33' 187'' N and 77° 33' 369''E, altitude 2010 ft.), Chikhaldara block, Melghat, Amravati, Maharashtra. Another accession (D 2012-71) was also collected as a weed in the little millet field from the village Kamapur (21° 24' 675'' and 77° 23' 414'' altitude

2935 ft.), Chikhaldara block, Melghat, Amravati, Maharashtra. Locally the plant is called as *Kolu*. Herbarium was prepared and the seed samples were collected in a randomized manner from the population of the plants. The seeds were processed and deposited at National Bureau of Plant Genetic Resources, New Delhi for conservation in the National Gene Bank. The assigned Indigenous Collection numbers for (D2012-10) and (D 2012-71) are IC 597288 and IC 597348 respectively. It is a common Pasteur grass on the rich and cultivated soil. Plant pigmentation green to light purple and green at the base, plant height about 90-120 cm, stem erect, ascending, simple or branched, moderately pubescent, leaves green, long (28.0-30.0 cm), leaf breadth 1.0 cm, sparsely hairy, margin scabrid, spiciform, leaf sheath glabrous, inflorescence 25.0-30.0 cm in length, panicles cylindric, 2.5-17.5 cm, usually yellow, spikelets numerous, ellipsoid, glabrous, bristles of involucrel 6 to 12, very variable in length.

The importance of collection of crop wild relatives (CWRs) has been emphasized by many workers world wide. CWRs are essential components of natural and agricultural ecosystems and hence are indispensable for maintaining ecosystem health (Maxted *et al.* 2008). Diversity collected within and among the species has also been exploited. Keeping this in view, the present collection of germplasm and new report from Melghat Biosphere Reserve would help in increasing the genepool of *Echinochloa* and *Setaria* species from the region.

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Fig. 1. A-B. Topography of Melghat Biosphere Reserve; C-D. Plants of *Setaria pumila* (Poir.) Roem. & Schult. and inflorescence; E-F. Panicle and seeds of *Echinochloa crus-galli* (L.) P. Beauv.

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